Refugio Beach Oil Spill

Draft Damage Assessment and Restoration Plan/Environmental Assessment

Dr. Michael Anderson

May 13, 2020

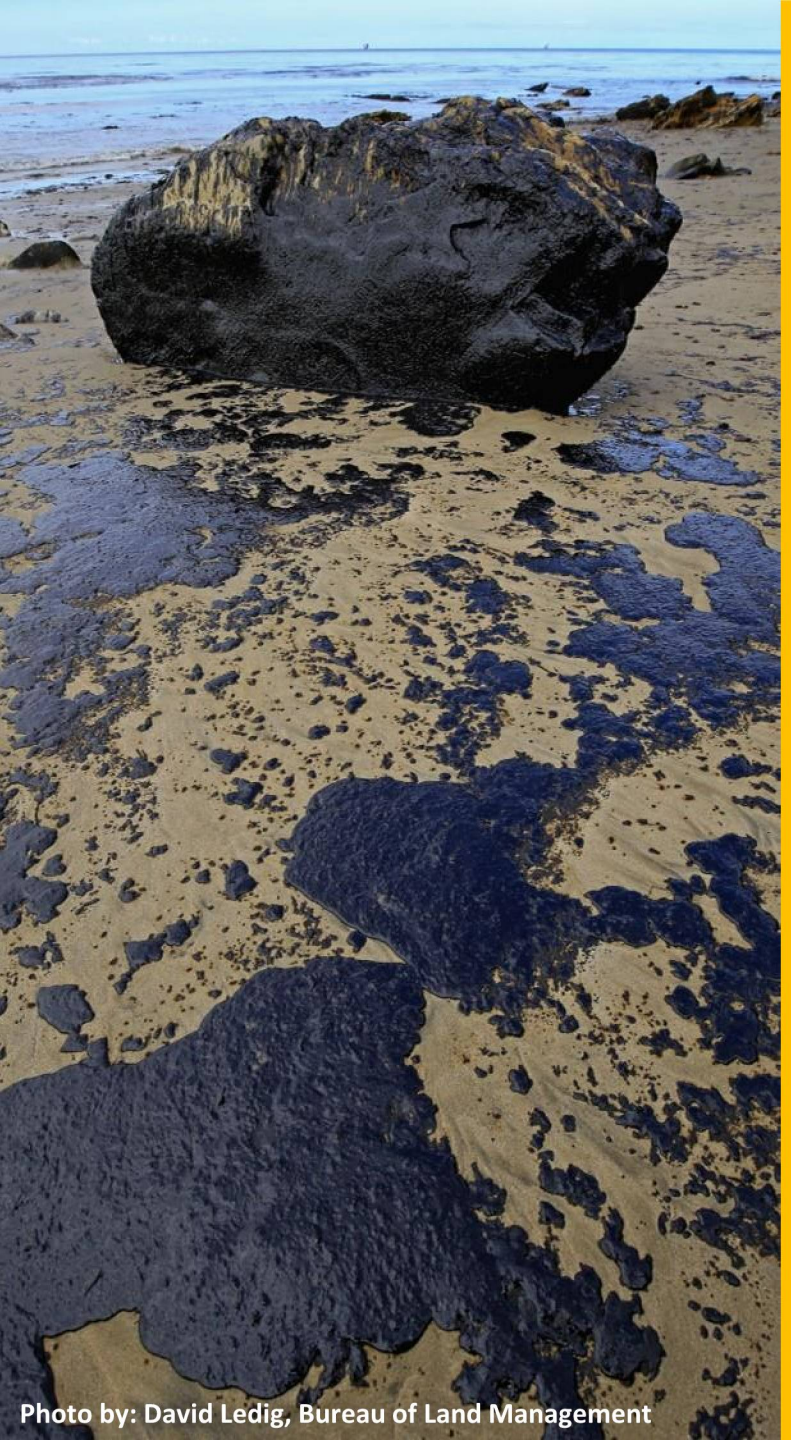


Photo by: David Ledig, Bureau of Land Management

Presentation Outline

- Welcome!
- Overview of the Spill & Assessment
- NRDA Process
- Injury Assessment & Proposed Restoration Projects: Resource-by-Resource
- Q & A Session
- Your Comments on the Draft Plan

Overview of the Spill & Assessment

Photo by: David Ledig, Bureau of Land Management

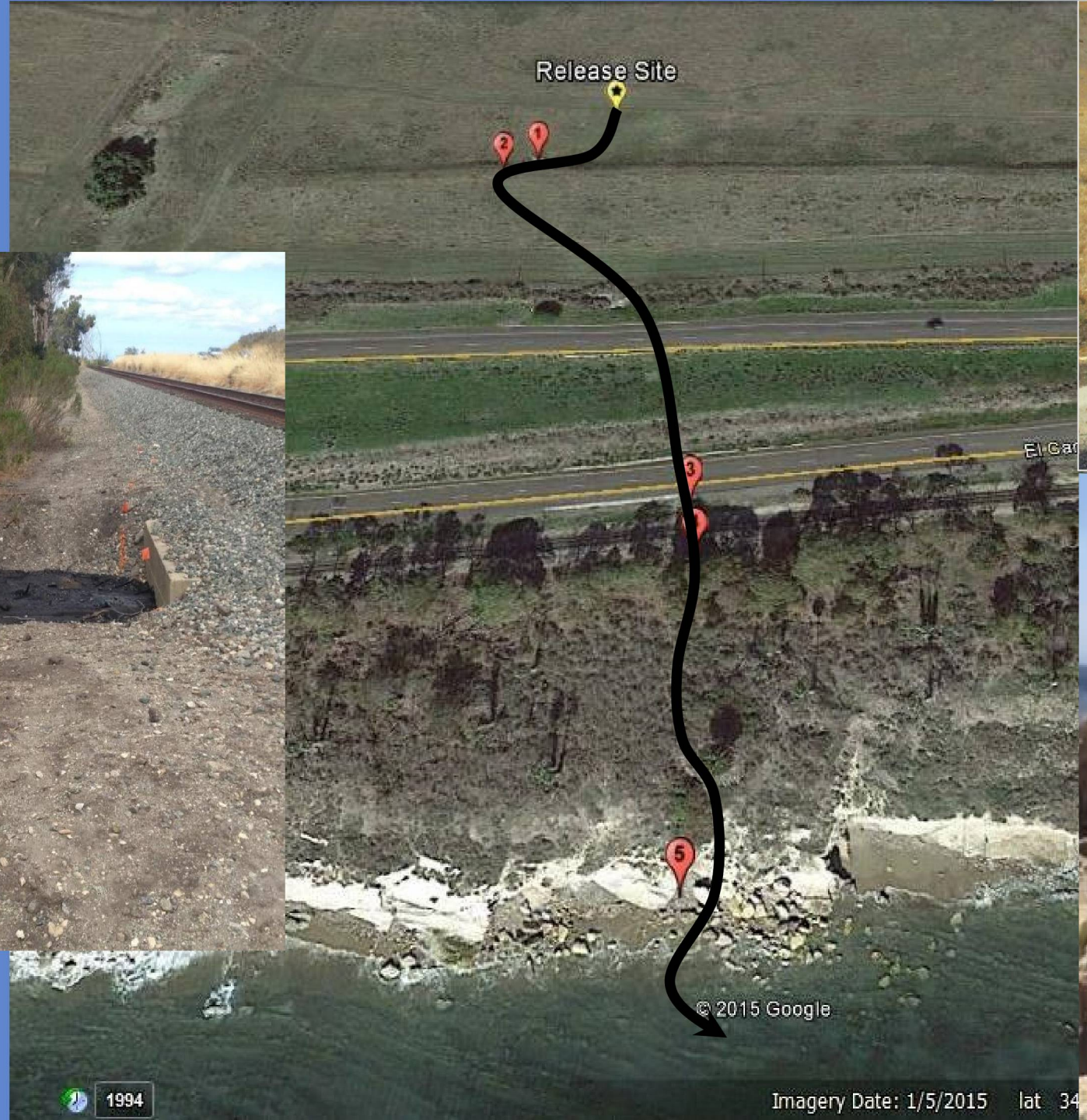
The Spill

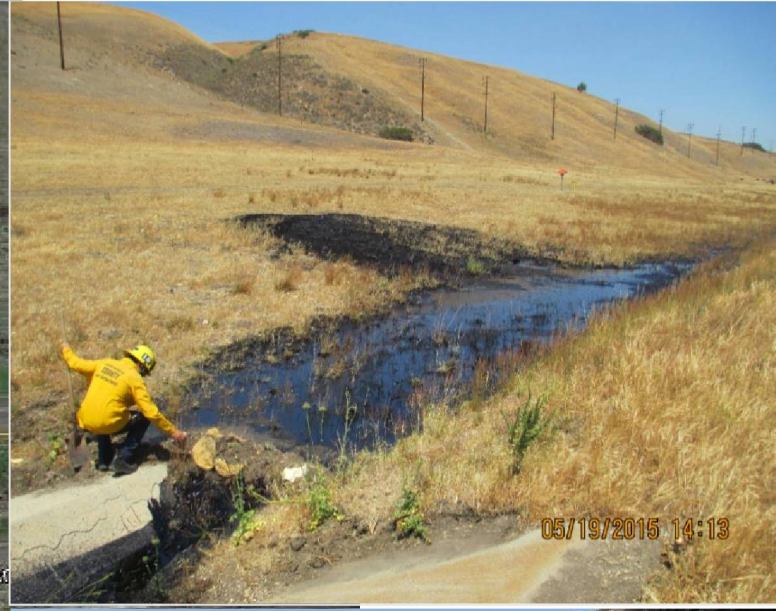
INCIDENT SUMMARY: On May 19, 2015, an underground pipeline (Line 901) running parallel to Highway 101 ruptured near Refugio State Beach, spilling over 123,000 gallons of crude oil, much of which ran down a ravine under the freeway and entered the ocean.

RESPONSIBLE PARTY: Plains All American Pipeline, L.P., and Plains Pipeline, L.P. (jointly, Plains)

NATURAL RESOURCE TRUSTEES:


05/19/2015 15:33
Nevada
Carson City
Sacramento
San Francisco
San Jose
California
Fresno
Los Angeles
San Diego
Tijuana
Lompoc
Santa Barbara
Santa Clarita
Simi Valley
Oxnard
Thousand Oaks
Los Angeles
Santa Monica
Long Beach
Lancaster
Palmdale


Release Site
1
2
3
5
© 2015 Google
1994
Imagery Date: 1/5/2015


05/19/2015 14:13

Refugio Oil Spill Characteristics

- Rapid release of Line 901 oil into intertidal zone at water surface
- Distinguishable from naturally occurring tar balls and acutely toxic
- Sheen covered a large area in Santa Barbara Channel
- Oil traveled from the release area all the way to Orange County
- Oil coated and killed animals and vegetation

Refugio Beach: Assessment

Components of the Injury Assessment:

Release

↓

Pathway/Extent

↓

Exposure

↓

Injury

Pathway/Extent

- **Forensic Evaluations (oil, water, tissues)**
- Trajectory Modeling
- Shoreline Cleanup and Assessment Data
- LIDAR/Coastal Imagery

Pathway/Extent

- Forensic Evaluations (oil, water, tissues)
- **Trajectory Modeling**
- Shoreline Cleanup and Assessment Data
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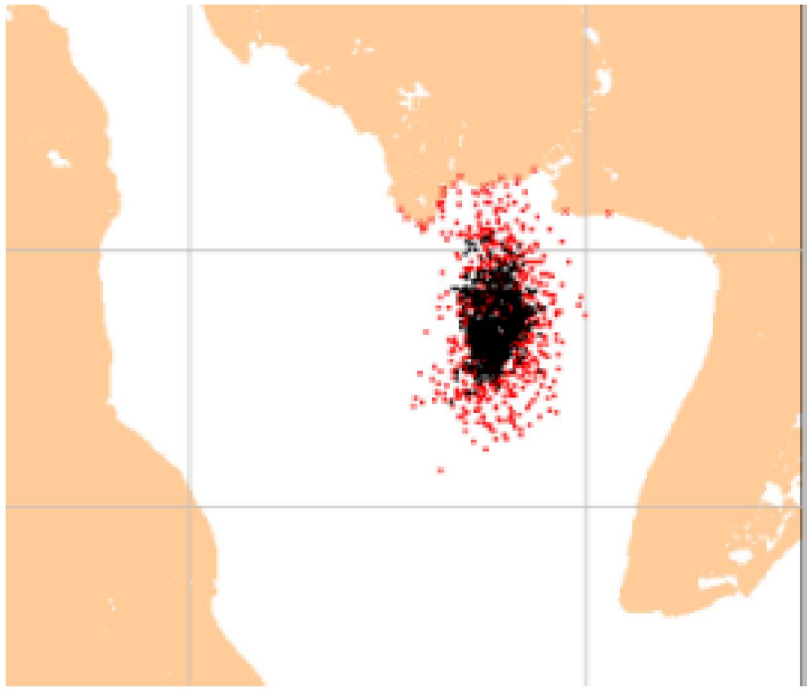
General NOAA Operational Modeling Environment (GNOME) Surface Oil Trajectory Model:

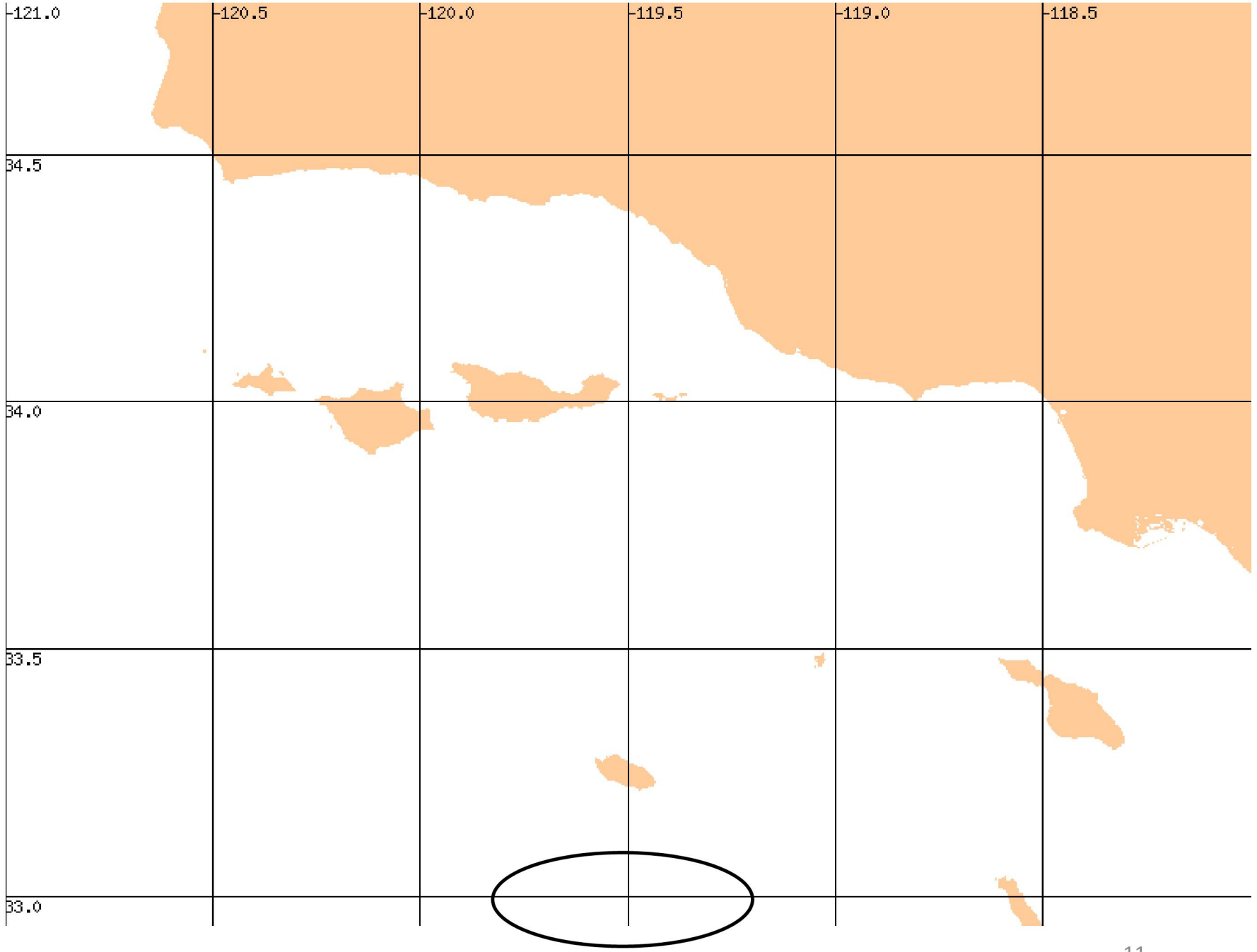
- ✓ Uses regional ocean model (CA ROMS) for offshore currents
- ✓ Informs the potential footprint of the spill and the likelihood that Line 901oil reached various shoreline locations.



https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/gnome.html

Limits of the GNOME and Other Models:

- Oil is released 1 km offshore because no nearshore transport factors
- Particle-based; not volume or concentration based
- Does not account for sinking or degradation



Pathway/Extent

- Forensic Evaluations (oil, water, tissues)
- Trajectory Modeling
- **Shoreline Cleanup and Assessment Data**
- **LIDAR/Coastal Imagery**

Exposure/Injury

Subtidal and Fish Habitats

- Mortality Observations
- Water Chemistry
- Line 901 Oil Three Species Bioassay
- Tissue Chemistry
- Surfgrass Assessment
- Surfperch Biliary PAH Metabolites
- Grunion Spawning and Hatching
- Sheen in Kelp Canopy

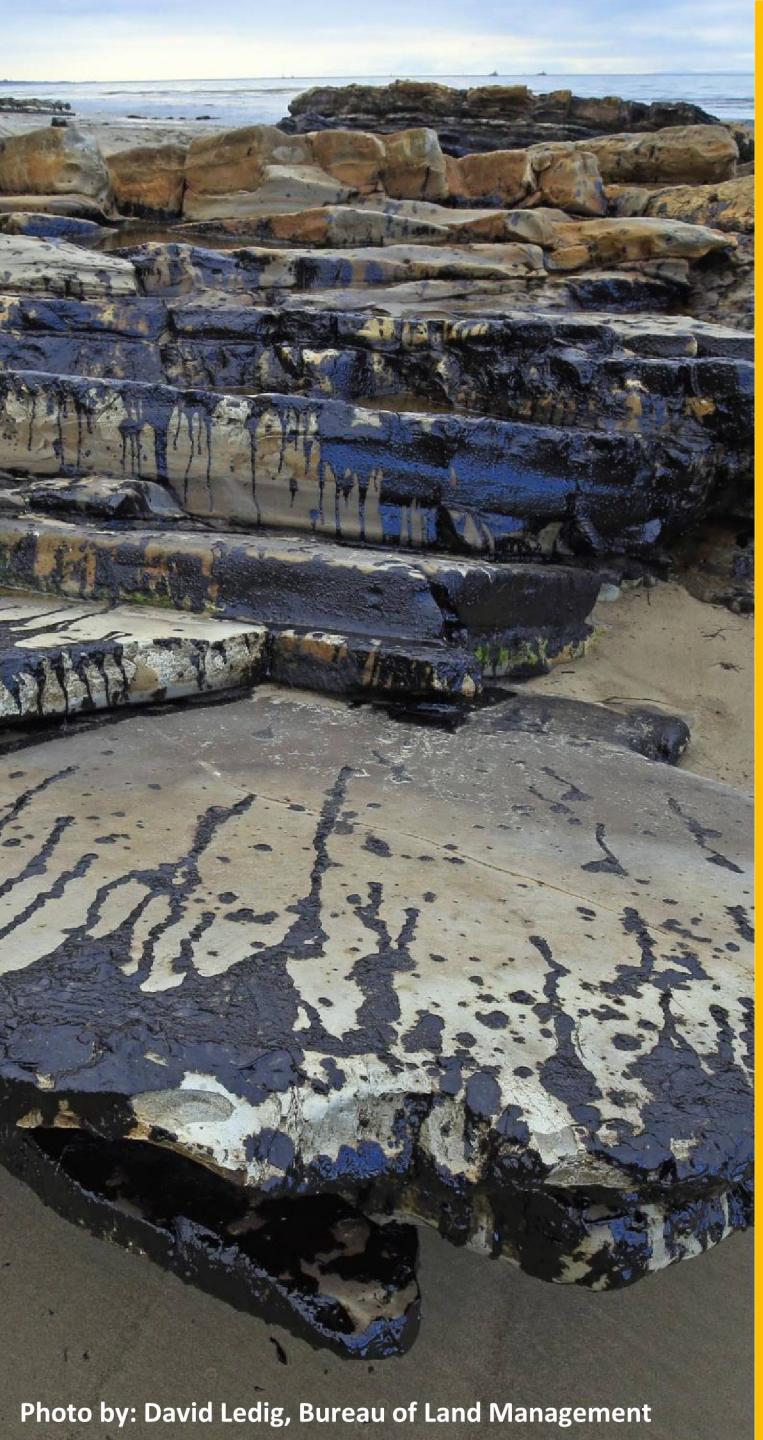


Photo by: David Ledig, Bureau of Land Management

Exposure/Injury

Shoreline Habitats

- Shoreline Oiling Levels (Spill Response)
- Mortality Observations
- Line 901 Oil Three Species Bioassay
- Porewater and Tissue Chemistry
- Sandy Beach Invertebrate Population Studies (UCSB)
- Rocky Intertidal Rapid Assessment Surveys (UCSC)
- Cleanup Impacts

Exposure/Injury

Birds and Marine Mammals

- Wildlife Reconnaissance with Aerial and Boat Surveys
- Live and Dead Bird/Mammal Intake Data
- Snowy Plover Oiling and Reproductive Effects
- Brown Pelican Roost Surveys and Rehabilitation Survival Studies
- Sandpiper Pier Cormorant Colony Survey
- Marine Mammal Stranding Observations

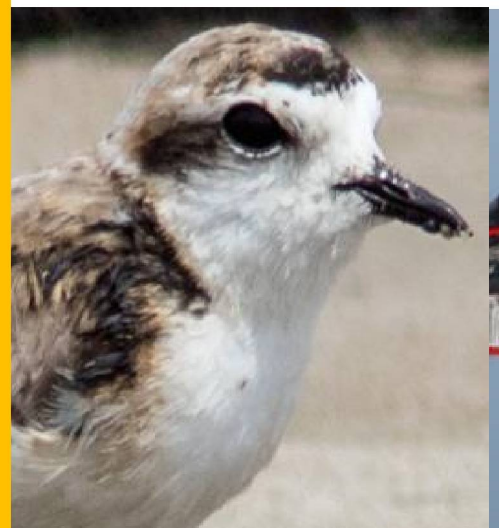
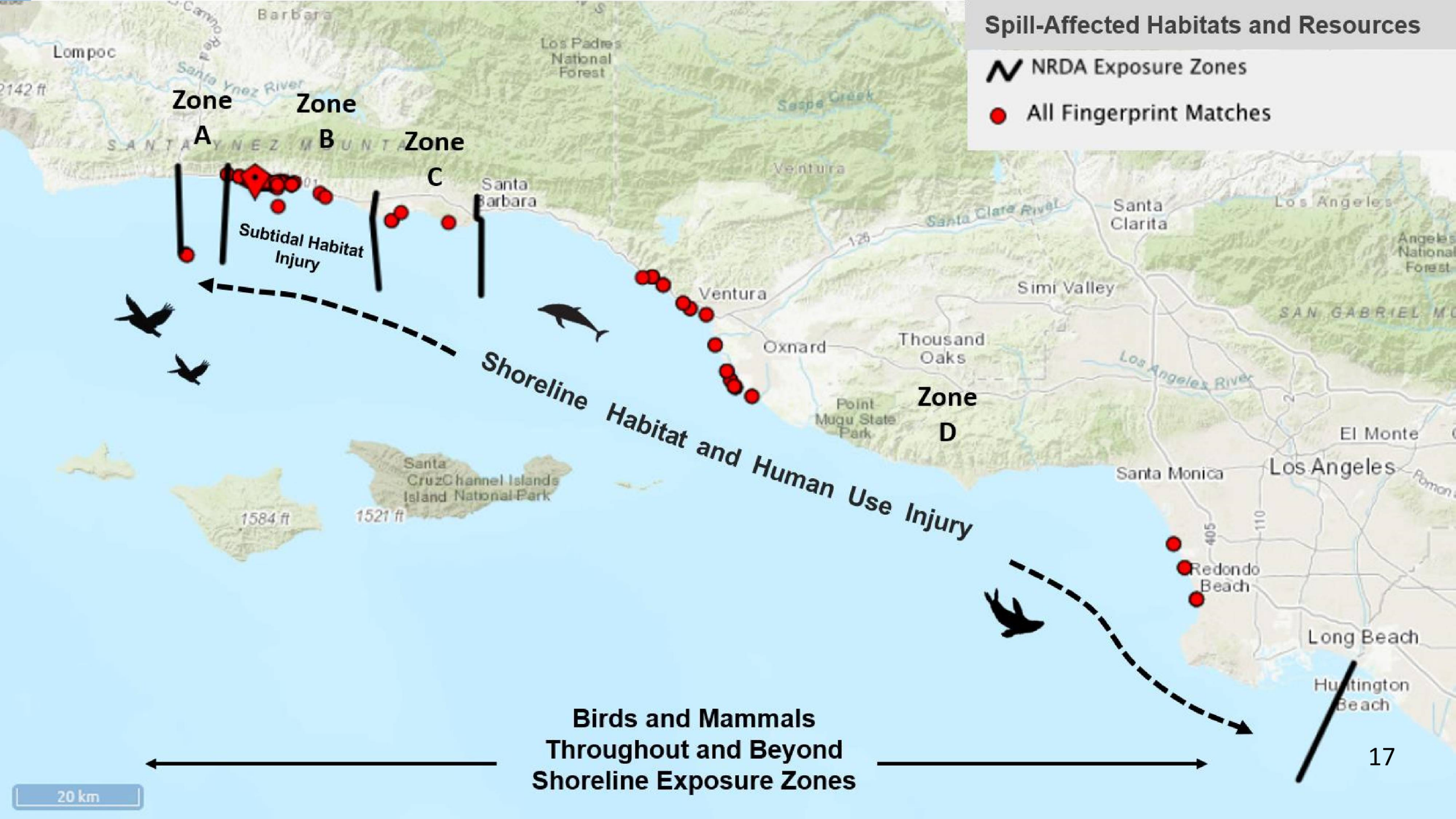


Photo Santa Barbara Channelkeeper, and NRDA Trustees

Exposure/Injury

Human Uses

- Recreational and university research, education, and outreach loss analyses (e.g.):
  - Targeted user counts and user interviews
  - Compilation of available use data
  - Interviews with land managers from Santa Barbara to Los Angeles Counties
  - Statistical analysis of user trends
  - Economic modeling of travel costs


Spill-Affected Habitats and Resources
NRDA Exposure Zones
All Fingerprint Matches
Zone A
Zone B
Zone C
Zone D
Subtidal Habitat Injury
Shoreline Habitat and Human Use Injury
Birds and Mammals Throughout and Beyond Shoreline Exposure Zones
Lompoc
Santa Barbara
Ventura
Oxnard
Thousand Oaks
Simi Valley
Santa Clarita
Los Angeles
Santa Monica
Redondo Beach
Long Beach
Huntington Beach
El Monte
Point Mugu State Park
Santa Cruz Island
Channel Islands National Park
1584 ft
1521 ft
20 km

Natural Resource Damage Assessment Process

Photo by: NRDA Trustees

Potential Components of a Oil Spill Case Settlement

- Outstanding clean-up costs (Response)
- Penalties
- Injunctive Relief

→ **USDOJ Consent Decree-related and separate comment period: March 20, 2020 – May 20, 2020**

- Other claims
  - Public entities (lost tax revenue, lost parking fees, extra staff time, etc.)
  - Private claims (lost income, injury to property, etc.)
- Natural resource damages

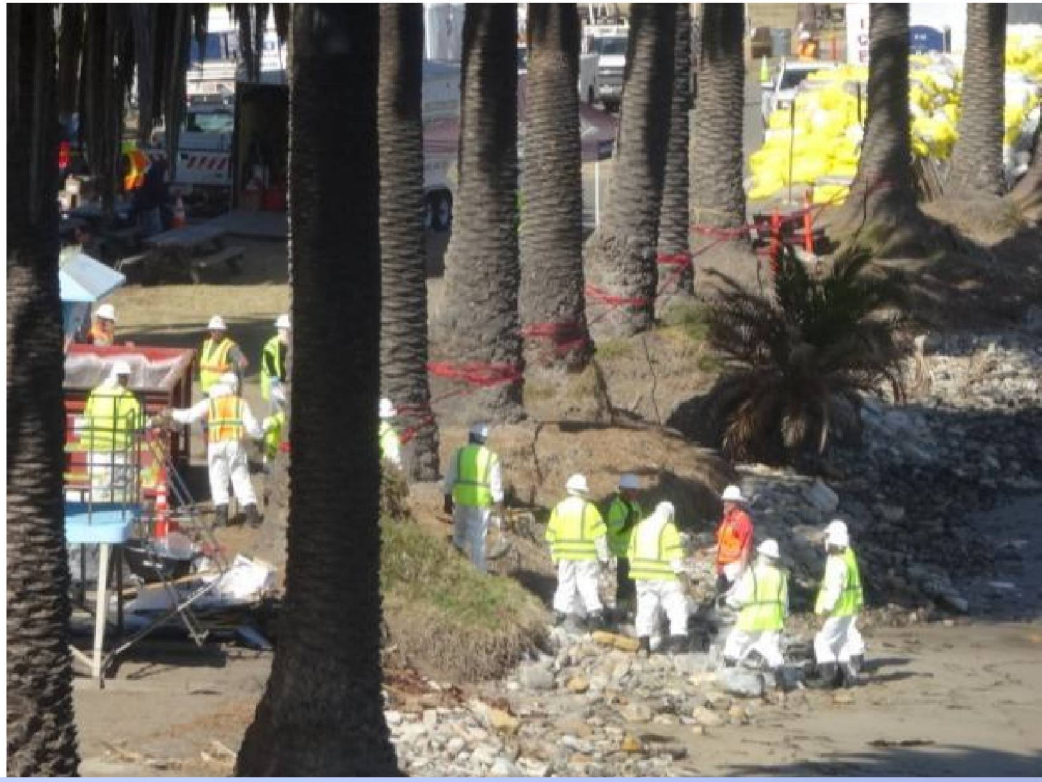
→ **Comment period: April 22, 2020 – June 8, 2020**

Legal Authority

- Oil Pollution Act of 1990 – oil
- Other Federal Laws (e.g. Clean Water Act)
- Lempert-Keene-Seastrand Oil Spill Act (CA)
- Other State Laws

Coordination

- Plains (Responsible Party)
- Several cities and counties
- Several bands of the Chumash Nation
- Non-government organizations
- Local and national experts



Refugio NRDA: Steps in the process

1) Oil Spill (May 19, 2015)
2) Data Collection (completed)
3) Injury and Damage Quantification (completed)
4) Public Scoping Meeting (January 2016)
5) Notice of Intent (March 2019)
6) Draft Restoration Plan (completed)
7) Public Meeting & Comment
8) Final Restoration Plan (estimated late summer 2020)
9) Implement Restoration Projects (2021 - onward)

Compensation for Spill Losses

We Are Here

Injury & Damage Quantification For Wildlife and Habitat

Methods are Restoration-based

KEY QUESTIONS:

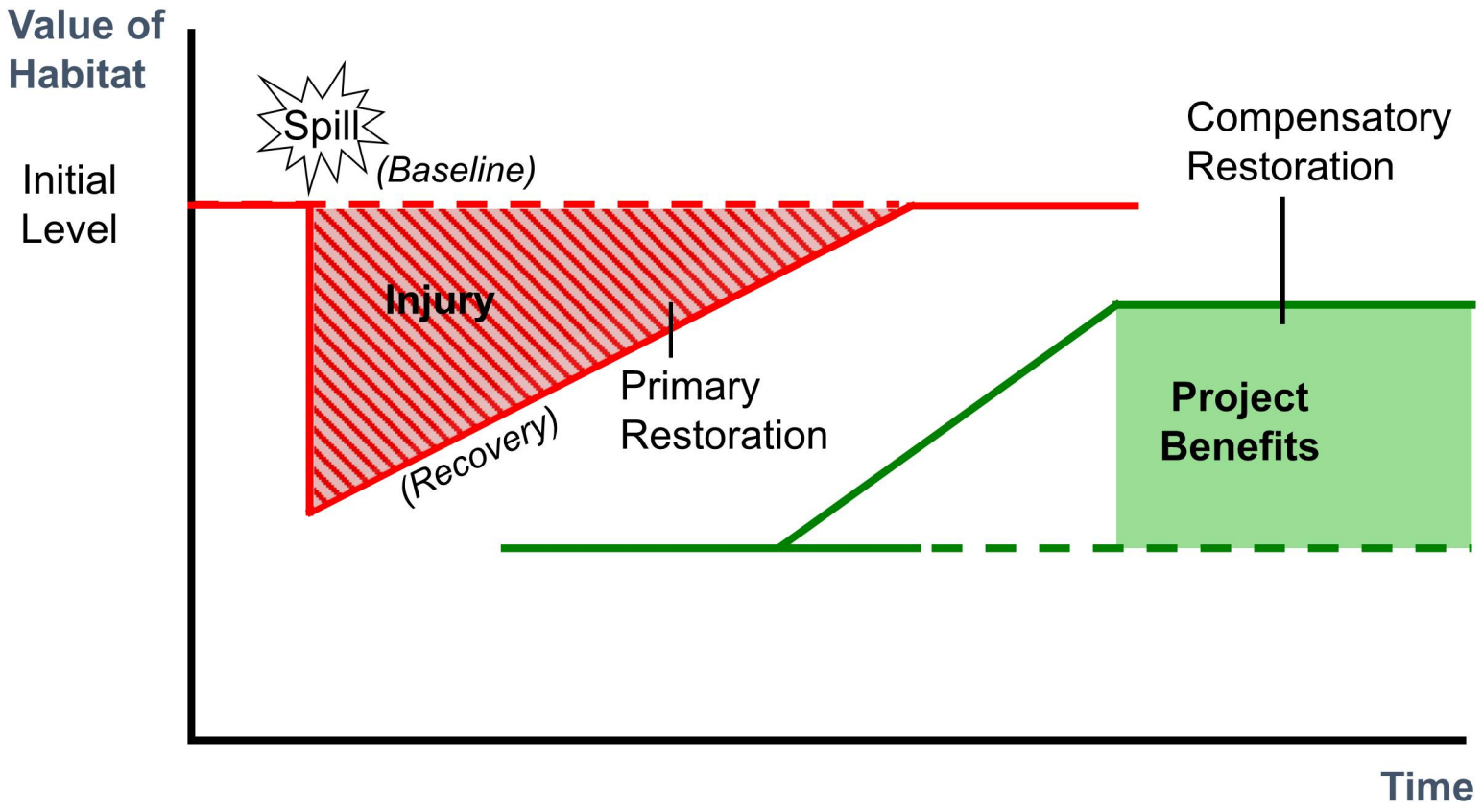
- How big of a restoration project do we need to compensate for the injury? How much will that cost?

EXAMPLE METHOD:

- Resource or Habitat Equivalency Analysis

Habitat Equivalency Analysis (HEA) is a method used to scale restoration to injuries.

Acre-Years of Loss Due to Spill = **Acre-Years Gained from Restoration Project**



California Trustee Restoration Project Selection Criteria

- ❑ Nexus to Injured Resources (i.e., projects located in spill area or directly benefit species affected)
- ❑ Compliance with Applicable Laws
- ❑ Multiple Resource Benefits
- ❑ Time to and Duration of Benefits
- ❑ Avoidance of Adverse Impacts
- ❑ Likelihood of Success
- ❑ Cost Effectiveness
- ❑ Technical Feasibility
- ❑ No Duplicate or Replacement Funding
- ❑ Cultural/Historical Value
- ❑ Education/Research Value
- ❑ Effect of Project on Public Health and Safety
- ❑ Opportunities for Collaboration

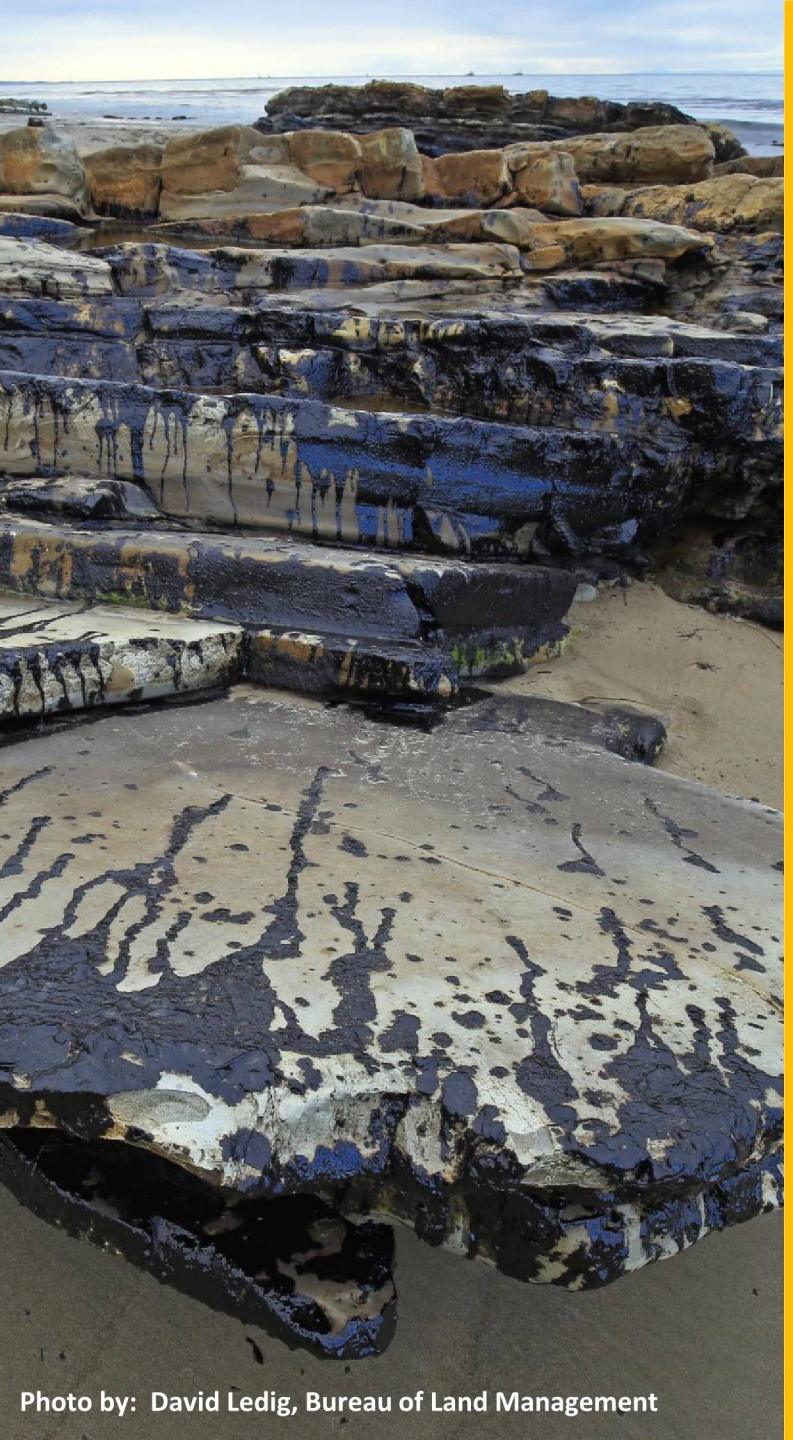


Photo by: David Ledig, Bureau of Land Management

Summary of Resource Categories & Damages

• Birds	$2.2 Million
• Marine Mammals	$2.3
• Subtidal and Fish Habitats	$6.1
• Shoreline Habitats	$5.5
• Human Uses	$3.9
Restoration Planning, Implementation, Oversight	$2.0

Settlement Total: $22 Million

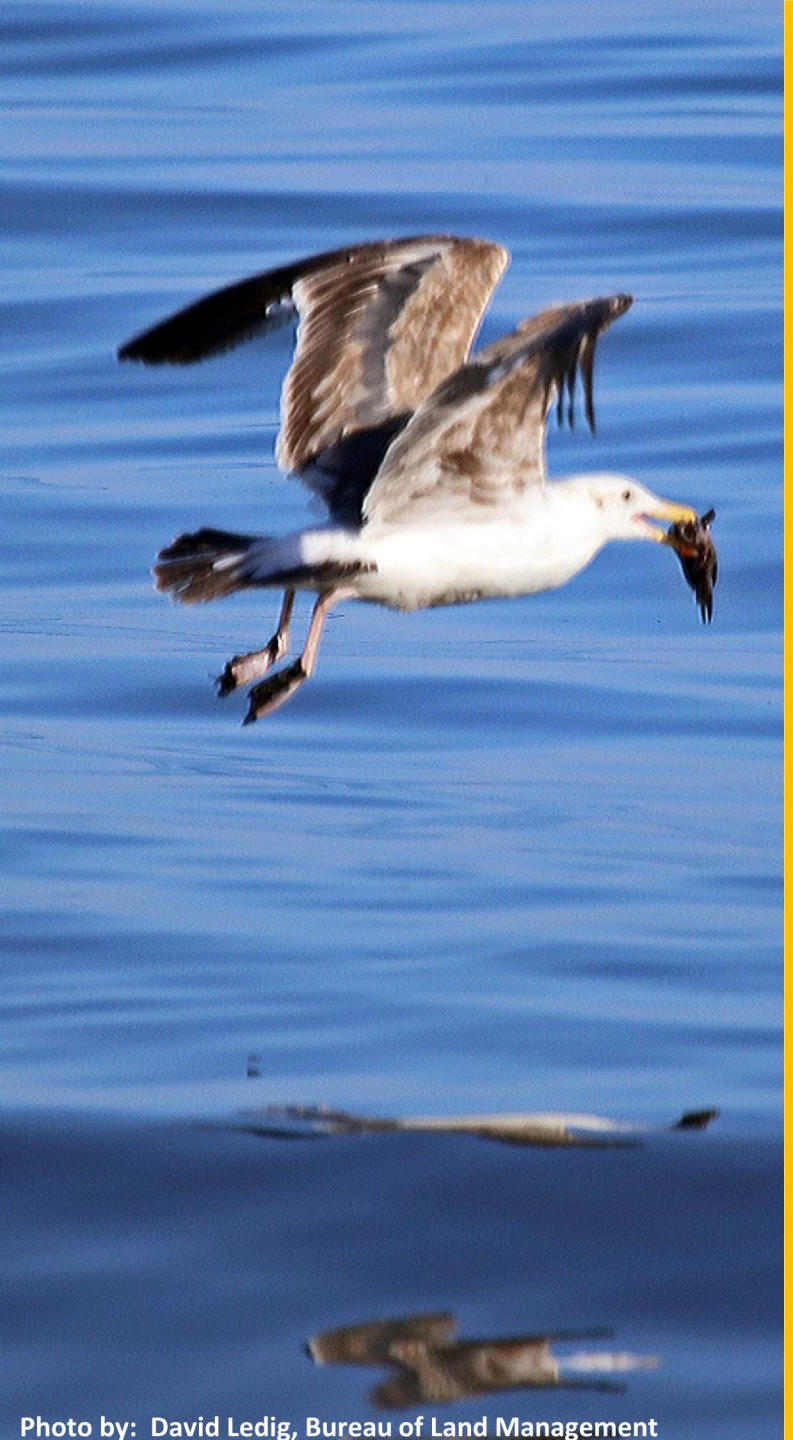


Photo by: David Ledig, Bureau of Land Management

Injury Assessment and Proposed Restoration Projects: Resource-by-Resource

- Birds
  (Jenny Marek, USFWS)
- Marine Mammals
  (Laurie Sullivan, NOAA)
- Subtidal and Fish Habitats
  (David Witting, NOAA)
- Shoreline Habitats
  (Bruce Joab, CDFW)
- Human Uses

  (Matthew, Zafonte, CDFW)